What is claimed is;

1. A copolymer of ethylene and $\alpha$-olefin of from 4 to 20 carbon atoms having melt flow rate of from 1 to 100, melt tension at 190℃ (MT), intrinsic viscosity ($[\eta]$) and a chain length A satisfying following formula (1) to (3), wherein the chain length A is a chain length at peak position of a logarithm normal distribution curve of a component having the highest molecular weight among logarithm normal distribution curves obtained by dividing a chain length distribution curve obtained by gel permeation chromatography measurement into at least two logarithm normal distribution curves,

$$2 \times MFR^{-0.59} < MT < 20 \times MFR^{-0.59}$$ formula (1)

$$1.02 \times MFR^{-0.094} < [\eta] < 1.50 \times MFR^{-0.156}$$ formula (2)

$$3.30 < \log A < -0.0815 \times \log(MFR) + 4.05$$ formula (3).

2. A copolymer of ethylene and $\alpha$-olefin of from 4 to 20 carbon atoms having melt flow rate (MFR) of from 1 to 100, melt tension at 190℃ (MT), intrinsic viscosity ($[\eta]$) and characteristic relaxation time at 190℃ ($\tau$; unit is sec) satisfying the following formulas:

$$2 \times MFR^{-0.59} < MT < 20 \times MFR^{-0.59}$$ formula (1)

$$1.02 \times MFR^{-0.094} < [\eta] < 1.50 \times MFR^{-0.156}$$ formula (2), and

$$2 < \tau < 8.1 \times MFR^{-0.746}$$ formula (4).

3. The copolymer of ethylene and $\alpha$-olefin according

to Claim 1 or 2, wherein the copolymer of ethylene and $\alpha$-olefin has activation energy for melt flow of not less than 60 kJ/mol.


4. The copolymer of ethylene and $\alpha$-olefin according to Claim 1 or 2, wherein the copolymer of ethylene and $\alpha$-olefin has swell ration (SR) and $[\eta]$ satisfying following formula (6).

when $[\eta] < 1.20$, $-0.91 \times [\eta] + 2.232 < SR < 2$

when $[\eta] \geqq 1.20$, $1.17 < SR < 2$.